CHAPTER 56

SAFETY LEVELS

SECTION I - GENERAL

256101 - PURPOSE

a. This chapter describes a mechanical procedure for calculating variable safety levels using mathematical formulas and fixed safety levels.

b. The purpose of the DoD Variable Safety Level (VSL) is to minimize not only the number of requisitions which are placed on backorder, but to minimize the time on backorder as well. This is referred to as time-weighted requisitions short. In so doing, one may conceivably establish more backorders but hold them in a backorder status for a shorter period of time. The following examples of performance are equivalent:

(1) 10 backorders each held 100 days = 1000 TW B/O.

(2) 100 backorders each held 10 days = 1000 TW B/O.

c. In this concept of minimizing the overall time-weighted requisitions short, all requisitions are of equal importance. The size of a VSL given to an item depends upon its demand, procurement cycle, variance of demand, leadtime, unit price, number of requisitions, and average requisition size. It is expected that each item will not get the same protection, since the formulation is concerned with requisitions and minimizes the time delay to fill the average requisition.

256102 - SCOPE

The procedures contained herein are based on DLAR 4140.58, Procurement Cycles and Safety Levels of Supply, and HQ DLA Guidance for Implementation of Time- Weighted Essentiality - Weighted Requisition Short Variable Safety Level.

256103 - REFERENCES

a. DLAM 4140.3, Materiel Management Manual.

b. Appendix A-38, Weapon System Essentiality Codes (WSECs)/Weapon System Maintenance Codes (WSMCs).

c. Appendix A-44, Weapon System Designation Codes (WSDCs)/Weapon System Indicator Codes (WSICs)/Weapon System Group Codes (WSGCs).

d. Appendix A-85, Demand Value Codes.

e. Appendix A-87, Item Category Codes.

f. Appendix A-103, Safety Level Codes.

g. Appendix A-114, Inhibit Codes.

h. Appendix B-61, Reorder Point Review Notification, DIC ZR6.

i. Appendix B-70, Management Policy Table Transactions, DIC ZTA.

j. Appendix B-189, Supply Control Data Change Transaction, DIC ZR3.

k. Appendix F-34, New Item Table 020.

l. Appendix F-62, Safety Level Costs.

m. Appendix F-78, Weapon Systems Support Program VSL Augmentation.

n. Appendix F-82, Variable Safety Level Table 007.

o. Appendix F-261, Agency Demand, Minimum System/Minimum Location Dollar Buy, Maximum Release Quantity, Safety Level, OWRMRP, and Procurement Cycle Period in Months Table 018.

p. Appendix F-333, Safety Level Factors for Critical Weapon Systems Table 005.

256104 - INPUT

The elements of information required for calculation of various Safety Levels:

a. Fixed Safety Level in months.

b. Safety Level Code.

c. Management Policy Table 007 (MPT007), Backorder Levels.

d. Management Policy Table 005 (MPT005), Safety Level Factors for Critical Weapon Systems.

e. Production Leadtime in days.

f. Procurement Cycle in months.

g. System Quarterly Forecast of Demand.

h. Smoothed Mean Absolute Deviation (MAD) of Forecast Errors.

i. Regular Alpha Factor.

j. Correcting Alpha Factor.

k. Administrative Leadtime in days.

l. Demand Value Code.

m. Acquisition Cost.

n. Demand Frequency.

o. System Constant.

p. Proportion of Recurring Demand Allocable (PRDA).

q. Item Category Code (ICC).

r. Very Important Program (VIP) Item Code.

s. Fleet Issue Load List (FILL) quantity.

t. Variable Safety Level Essentiality Factor.

SECTION II - TYPES OF SAFETY LEVELS

256201 - FIXED SAFETY LEVEL

The Fixed Safety Level (FSL) procedure will apply whenever:

a. An item is a nonstocked SSC 2, 3, or 9 and the FSL Code will be F representing an insignificant entry.

b. An ICC is 2 or B, Numeric Stockage Objective (NSO) item and the FSL Code will be F representing an insignificant entry which is suppressed whenever the appendices F-161, F-162, F-167, F-168, or F-170 supply studies are printed.

c. All Age of Item Code N, ICC 1/P items, initially established through provisioning, logistic gain or manually changed by the IM from SSC 2, 3, or 9 nonstocked status to stocked status, SSC A, 1, 4, 5, 6, 7, or 8, will be coded as F, FSL.

d. The FSL Code F may be manually input for specific items whenever clearcut advantages favor their use in preference to a Variable Safety Level Code V for ICC 1 or P items having an Age of Item Code E, Established. Items assigned SSC 6 may be assigned fixed safety levels of zero, based on IM review and judgements, when it has been determined that there is no replacement NSN, although this action may result in the output of an additional SSCS with Reason for Study Code MR. Any other assignment of an FSL for an established item requires the approval of HQ DLA. Such approvals will only be granted on an individual item basis, and must be justified in IAW DLAM 4140.3, Volume II, Paragraph 30402.3a.

e. The New Item Management Policy Table 020 provides the flexible capability of selecting by FSC the FSL Months for:

(1) All newly established stocked and nonstocked items. For Age of Item Code N, NSO, SSC 2, 3, and 9 items, this is an insignificant entry. The NSO supply studies suppress this FSL Months entry.

(2) All Age of Item Code N, New, stock replenishment items processed from the provisioning or logistic gain procedures which have an Item Category Code 1/P will have these FSL Months automatically assigned.

(3) All Age of Item Code E, Established, items migrating within the High, Medium, or Low Demand Value Codes where the Item Category Code 1/P, Replenishable Demand, does not change will use the table 020 VIP or non-VIP FSL Months quarterly if the item has a manually entered Fixed Safety Level Code F recorded. In other words, a manually entered Fixed Safety Level Code F for an established replenishable demand item will inhibit the use of the Variable Safety Level computation for that item even if it migrates in and out of High, Medium, or Low Value of Demand status. Refer to chapter 29, Quarterly Review Process.

f. Quarterly, all Age of Item Code N, New, and all Item Category Code 2 NSO items will be reviewed in the Quarterly Review Process, chapter 29 process for items having a Date Management of Item Assigned 24-26 months in the past (i.e., 2 years). The items that qualify for Age of Item Code E and Item Category Code 1 migration will automatically be assigned a Variable Safety Level Code V.

g. In the monthly, VIP and quarterly forecast period all Item Category Code 1/P Age of Item Code N, FSL Code F items where the newly computed QFD/System quantity is equal to or greater than the QFD/New quantity will automatically be assigned a Variable Safety Level Code V, Age of Item Code E, Procurement Cycle Code E and use the QFD/System quantity for forecast purposes.

h. All FSL Months entries and computations are two numeric positions with one decimal being assumed. (i.e., 1.0 = 1 month, 1.5 = 1 1/2 month etc.).

256202 - VARIABLE SAFETY LEVELS

a. The use of the Variable Safety Level (VSL) process, Safety Level Computations, is the general rule for Item Category Code 1/P, Age of Item Code E, High, Medium, and Low replenishable demand items. The DoD VSL tailors the safety level to the specific characteristics of each item, thereby making maximum use of available funds by neither overinvesting nor underinvesting in safety stock.

b. To achieve the above goal, a method for calculating the actual time-weighted requisitions short variable safety level, Prime Formula I, for each item is necessary.

(1) A backorder figure known as Beta I, Prime Formula I, represents the number of backorders for stocked items on file at the end of a period. It will be in the Variable Safety Level Management Policy Table 007, appendices B-70, E-70 P, F-62, and F-82. The Beta I, Prime Formula I, is used in all daily, monthly, and quarterly computations.

(2) Six backorder figures will actually be used in the computations for VSL items. The other backorder figure represents the DSC goal, Beta O. Five of the backorder figures, formulas 2 through 6 will only be utilized during the quarterly computations.

(3) The five formulas 2 through 6, backorder figures, will be selected by each DSC based on past performance. The appendix F-062, Safety Level Costs, listing depicts five ranging backorder figures, and the current selective Prime Formula I. A graph explained and

illustrated in appendix E-368 P will be manually prepared with one scale representing backorder figures and the other scale representing safety stock in dollars. The costs by backorder figures will be plotted on the graph and connected by a curve line. The funds available to support the backorder figure will be indicated on the Safety Stock Dollar Value scale and projected in a straight line to intersect the curved line. The point at which the two lines intersect carried to the backorder scale, will represent the most advantageous Prime Backorder Formula I for the succeeding quarter.

(4) The ability to compute a range of Prime Formula I, formulas 2 through 6, to ascertain a level of effectiveness under which the center can operate based on funds available, is required prior to the selection of the succeeding Prime Formula I backorder figure.

c. A special augmented Variable Safety Level computation will be performed in addition to the standard DoD VSL computation for Weapon Systems items having entries in Management Policy Table 005, Safety Level Factors for Critical Weapon Systems, appendices B-70, E-70 P, and F-333, and possessing the following characteristics: (1) the Safety Level Code is V; (2) the Weapon System Indicator Code is F, L, T, G, M, W, H, P, X, J, R, Y, K, S, or Z; (3) the Item Category Code is 1 or P, (4) the Supply Status Code is 1, 4, 5, 6, 7, 8, or A; (5) the Age of Item Code is E; and (6) the Shelf-Life Code is zero. The augmented Variable Safety Level computation for Weapon Systems items employs Supply Availability percentages from MPT005 to obtain a safety level value which is compared to the value obtained by using the standard DoD Variable Safety Level. The larger of the two values is then used as the safety level quantity in the Supply Control File. These two computations are performed for qualifying Weapon Systems items in all daily, monthly, and quarterly processes which trigger a Variable Safety Level computation, including the monthend Family Number Change process, DIC ZJS, and the monthend Catalog Change process, DIC ZRY.

256203 - IDENTIFICATION AND INHIBIT CODES

Safety Levels established for each Item Category Code 1/P item will be identified by a Safety Level Code (SLC) indicated in Header Date of the Standard Supply Control Study (SSCS). Inhibit codes are assigned to indicate that the Safety Level requirement is either computer controlled based on the type of SLC assigned or manually controlled by the Item Manager. The SLCs should be changed by the computer during the quarterly review as follows:

a. When Low, Medium or High Value Established items migrate into another Low, Medium, or High Value status, and the item has a Safety Level Inhibit Code of P, the Safety Level requirement will not be changed, and the SLC will remain V, Variable, for Item Category Code 1/P, Age of Item Code E, items.

b. When a NSO item migrates to another Low, Medium, or High Value Item, the Safety Level Code (SLC) will be changed to V. The Safety Level quantity will not be recomputed if an Inhibit Code of P is assigned.

c. Inhibit Codes are defined in appendix A-114.

SECTION III - PROCEDURES FOR COMPUTING SAFETY LEVELS

256301 - CHANGES TO SAFETY LEVEL QUANTITIES

Changes to Safety Level quantities will be accomplished based on:

a. Automatic Changes - Change to the item Quarterly Forecast Demand (System), i.e., monthly for VIP items, quarterly for High, Medium and Low Value Demand items. Also, because of DIC ZRY, Monthly Catalog Change process, and DIC ZJS, Monthly Family Number Change process.

b. Manual Changes - Changed by the Item Manager using appendix B-189, Supply Control Data Change Transaction, DIC ZR3 with an input in the Safety Level Quantity field or appendix B-64, Forecast Data Change Transaction, DIC ZSF with an input in the QFD/SYSTEM quantity field for Age of Item Code E, Item Category Code 1/P items. Also, for qualifying weapon system items, inputting DIC WS1, appendix B-144, Weapon Item Data Transaction, to change Weapon System Designator Code (WSDC) information on an NSN basis, or inputting a delete a WSDC from all items on the Supply Control File, will cause both a DoD Variable Safety Level computation and an augmented Variable Safety Level computation for Weapon Systems items.

c. System Funding Restrictions - Decreased by Management at the DSC by using the B-70, Management Policy Table (MPT018) Transaction, DIC ZTA, as depicted in F-261. The Safety Level Quantity field in the Supply Control Record will be multiplied by the Safety Level Reduction Factor to obtain the Safety Level Quantity to be used in daily computations. When no funding restrictions are in effect, the factor 1.0 should be loaded into MPT018. This table will not be used to reduce the S/L for the chapter 37 Stratification process.

256302 - CATEGORIES

Determine Item Category Code (ICC), defined in appendix A-87, from Supply Control Record. If item is coded as Replenish able Demand (ICC P or 1) continue to process as an FSL or VSL item. Nonstocked SSC 2, 3, or 9, and NSO (ICC 2 or B) items do not process a safety level quantity or code change.

256303 - TYPES

Determine the type of Safety Level assigned to items as indicated by SLC defined in appendix A-103.

a. Code F is a Fixed Safety Level (refer to paragraph 256304).

b. Code V is a Variable Safety Level (refer to paragraph 256305).

256304 - REORDER POINT REVIEW

Upon change of the Safety Level a Reorder Point Review quantity is recomputed in accordance with chapter 32. If the newly computed Reorder Point Review quantity, which is forwarded to the National Inventory File, is equal to or greater than the Reorder Point Review Comparison Quantity, an internally generated DIC ZR6, Reorder Point Review Notice, appendix B-61, is sent back to the Supply Control File to force a review of the System Reorder Point.

256305 - MIGRATION OF ITEMS

a. When the Item Manager manually migrates on Item Category Code 2/B, NSO, to Item Category Code 1/P, the following actions must be taken:

(1) Ensure that the item is properly identified with the applicable Demand Value Code (appendix A-85).

(2) Identify the item with the applicable Safety Level Code (appendix A-103) which will normally be VSL for Age of Item Code E, Item Category Code 1/P items.

(3) Change the Age of Item Code from N to E.

(4) Input the QFD/System for Age of Item Code E items.

(5) Input QFD/New and Safety Level quantity, and Fund Safety Level Months for Age of Item Code N, Item Category Code 1/P items.

b. When an item for which a Variable Safety Level is computed, migrates to a NSO, VSL will no longer be applicable. The following action must be taken with a DIC ZR3, appendix B-189, Supply Control Data Change Transaction:

(1) Input the NSO quantity.

(2) Input Item Category Code 2/B.

(3) Change Safety Level Inhibit Code P (appendix A-114) to a C.

c. The migrations from Low, Medium, High Value Demand, and NSO items is mechanically accomplished during the Quarterly Item Review process described in chapter 29.